sema, lung cysts, unexplained hemoptosis, bronchial obstruction resulting from tumors and in the preoperative and postoperative evaluation of patients undergoing thoracic surgical operation.

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Intravenous Pyelography in Azotemia

Renal failure, in the absence of concurrent liver disease, is not a contraindication to excretory urography. Although the detail of renal structures obtained may be poor, the information gained can be vital, particularly the exclusion of remediable obstructive uropathy as the cause of the kidney failure. Standard volumes of any of the readily available intravenous urographic contrast media can be used, but larger volumes are recommended. Such high volume studies, particularly in combination with kidney tomograms and delayed x-ray films of the abdomen, can result in unexpectedly good demonstration of renal structures, even in some severely azotemic patients.

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Translumbar Pyelography in Children

When excretory urography fails to delineate the cause of unilateral obstructive uropathy and when retrograde pyelography is impossible, percutaneous translumbar pyelography may yield vital information. This procedure, utilized in 139 patients over the past 15 years, was reported from Stockholm in 1965.

Under television-monitored, image-intensification fluoroscopy, the dilated renal pelvis is punctured with a 20-gauge lumbar puncture needle. A urine specimen may be aspirated through this needle for bacteriologic and cytologic studies, and then water-soluble contrast media is injected.

Recently, Lalli applied this method in four children who had congenitally obstructed ureters. There was no complication in this pediatric series and the study clearly delineated the nature of the obstruction.

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The Osteochondroses

It is now commonly accepted that most if not all of what has been termed osteochondrosis or osteochondritis dissecans is the result of trauma. Frequently the inciting incident will not be recalled by the patient and development of symptoms may be long delayed. Minor repeated traumatic events may provide a fitting cause for most of these lesions, but several features seen occasionally are still unexplained. These include bilaterally symmetric lesions, such as are sometimes seen in osteochondritis dissecans, familial occurrence, and multiple areas of involvement in a single patient. It is possible that certain persons have an altered response to minor osteocartilaginous trauma. At present it seems more appropriate to denote these conditions as transchondral fractures rather than infer a factor of avascular necrosis.

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Growth Lines

Transverse lines in the metaphyses of the long bones have been termed "growth lines" but are more accurately denoted "post-growth arrest lines." Simple slowing or cessation of growth will not produce these bone strata, as they are formed only after recovery from illness when a spurt of growth is instituted. If growth is not resumed, a lucent line will be seen just beneath the cortex instead. This lucency was formerly thought to be

pathognomonic of leukemia but is now recognized as a sign of any chronic illness with bone growth retardation.

Growth lines can often be correlated with a definitely marked illness but there is no good correlation with the severity of the illness, for often severe illnesses leave no such marks. Conversely, many children will show growth lines during a period in which no cessation of growth or illness can be documented.

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Congenital Bone Lesions Following Fetal Viremia

The longitudinal striations seen in the metaphyseal portions of some long bones in rubella syndrome are now thought to be due to damage to the fetal mesoderm with failure of subsequent maturation to osteoblasts. Consequently, columns of defective bone are formed which appear roentgenographically at birth as longitudinal, vertical, lucent striations. They are most common in the humeri and femurs. They usually disappear through remodeling in a few months.

These lesions were originally reported only with rubella syndrome, but recently reports have documented identical lesions in cytomegalic inclusion disease.

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Cerebrospinal Fluid Dynamics Studied With Radionuclides

Human serum albumin tagged with iodine-131 is currently being employed to evaluate the cerebrospinal fluid spaces in a number of neuropathologic conditions including communicating hydrocephalus, CSF rhinorrhea and otorrhea, arachnoidal cysts and other obstructing lesions resulting from a variety of causes. The albumin tracer is injected in radionuclide cisternography via a lumbar puncture and the upward flow and symmetrical distribution of the tracer over the brain surface is observed.

Evaluation of the interventricular flow of the CSF is accomplished by injecting the radioactive tracer directly into the ventricular system in a manner similar to that used in air ventriculography. In addition to demonstrating altered flow caused by obstructing lesions, radionuclide ventriculography is ideally suited for evaluating the patency of neurosurgical shunts, particularly in children, where shunt revision is occasionally necessary. Shunt patency can also be examined by injecting the tracer directly into the subcutaneous pump of many of the currently used ventriculo-vascular shunts.

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Isotope Lung Scanning In Pediatric Respiratory Disease

Although lung scanning with isotopes is a well established diagnostic procedure, its use has been greater in adults than in children, and particularly helpful in evaluation of pulmonary infarcts. Pendarvis and Swischuk presented a well-structured multi-method analysis of respiratory diseases in childhood utilizing the short half-like isotopes of indium, 113 iron hydroxide and the gamma camera scanning equipment. In addition to the isotope scanning, conventional radiography, arteriography and bronchography were used in each case.

Among conditions studied and reported were primary pulmonary artery anomalies, chronic respiratory disease such as tuberculosis, hilar and mediastinal masses, bronchiectasis, cystic fibrosis and congenital bullae.

Although isotope scanning is not a primary absolute diagnostic procedure, it is emerging in pediatrics as an increasingly useful correlative